

ICS 13.280  
CCS F 70



**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB 4075-2009**

Replacing GB 4075-2003

---

**Sealed radioactive sources -- General requirements and  
classification**

密封放射源 一般要求和分级

**(English Translation)**

**Issued on: March 13, 2009**

**Implemented on: March 1, 2010**

---

**Issued by: General Administration of Quality Supervision, Inspection and  
Quarantine of the People's Republic of China, Standardization  
Administration of the People's Republic of China**

## Table of Contents

Introduction

1 Scope

2 Normative References

4 representation grading and

4 5 activity level requirements

5 6 Performance Requirements

6 7 test methods

Annex A (normative) toxic radionuclides packet

Annex B (normative) Example 13 sealed radioactive source certificates

Annex C (informative) general requirements of harsh environmental conditions

Annex D (informative) Additional test

Reference

## Foreword

This standard Chapter 4, Section 5, Chapter 6, Section 8, Chapter 9 and Chapter 10 are mandatory, the rest are recommended.

This modification uses the standard ISO 2919:1999 "General requirements and classification sealed radioactive sources." This standard and ISO 2919:1999 there is a technical difference compared.

--- deleted the foreword and introduction of international standards;

--- 4.1 in hierarchical representation to be modified according to the actual situation in China; Chapter 8. --- increase the source coding.

Instead of the standard GB 4075-2003 "General requirements and classification of sealed radioactive sources." This standard and GB 4075-2003 compared to the main It has the following changes.

a) All the original standard "GB/T 15849-1995" to "GB 15849-1995";

b) increasing the normative references ring [2004] 118 "Radioactive Sources Encoding Rules";

c) an increase in the Standard GB 4075 after 4.1 hierarchical representation, modified to GB 4075/xxxx/C (or E) xxx xx (x);

- d) increasing the amount of pollution in the test requirements pollution 6.1;
- e) The 7.6.1.1 in b), c item) were combined, to modify the height of the striker ( $6.0 \pm 0.2$ ) mm, the diameter of ( $3.0 \pm 0.1$ ) mm;
- f) an increase in the radiation source encoded source identification Chapter 8, chapter 9 and Appendix B certificate source;
- g) Remove Chapter 8, the expression "(see ISO 361)" and the "cladding should be identified prior to testing sealed sources";
- h) the bending test parameters of FIG. 1 is modified;
- i) the expression of the modified certificate Appendix B;
- j) The Appendix D file references are incorporated normative documents listed;
- k) the reference upgraded version 1 to version 2005;
- l) for some of the text to be modified to make the technology more explicit meaning.

This standard appendix A, to Appendix B, appendix C, Appendix D are informative annex.

## 2 Normative references

Terms of the following documents become provisions of this standard by reference in this standard. For dated reference documents, all later Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to agreements based on this standard Whether the latest versions of these documents. For undated references, the latest version applies to this standard.

Leakage test methods GB 15849-1995 sealed radioactive sources (eqv ISO 9978:1992)

GB/T 19001-2000 quality management system requirements (idt ISO 9001:2000)

"Radioactive Sources Encoding Rules" (cycloalkyl [2004] No. 118)

## 3 Terms and Definitions

This standard uses the following terms and definitions.

### 3.14

Fixed or movable mechanical means for securing the carrier or the source

### 3.1

To prevent leakage of radioactive material in a protective shell

### **3.2**

Some reproductions of sealed radioactive sources, with the sealing structure and material identical to that of the cladding radioactive sources, but the source with radioactive material in the core Physical and chemical properties similar to the material in place.

### **3.3 In determining**

the geometry, the number of particles sealed radioactive source of ionizing radiation and/or the number of photons emitted per unit time.

**Note:** The term preferably represents a radiation fluence rate.

### **3.4 Radioactive material from escaping into**

the environment of sealed radioactive sources.

### **3.5**

The term encapsulated sealed radioactive source, means an amount of leakage of sealed radioactive sources been tested not higher than given in Table 1 GB 15849-1995 Limit.

### **3.6**

A unique name (number, letter or combination of both) identifies the particular type of sealed radioactive sources.

### **3.7**

Refers to a radioactive material within a sealed radioactive sources practically insoluble in water, it can not be diffused into the material.

### **3.8**

Original sample for a radioactive source, which is manufactured with the same type all models sealed radioactive sources.

### **3.9 In order to provide adequate confidence indicates that**

an entity can meet the quality requirements, implemented within the quality system and demonstrated as needed full Department planned and systematic activities.

### **3.10 Radionuclides into**

the human body, its release of radiation on the human body extent of the damage.

### 3.11

Sealed in a housing with a material or a combination of radioactive material. Under specified conditions of use and normal wear and tear, such a package Shell or bonding material sufficient to maintain sealability source.

### 3.12 Some reproductions of sealed radioactive sources, the real structure and the sealing material, they represent the same as the source of its cladding, but the radioactive substances Mining

Substance instead of physical and chemical properties as close as possible, and contains only trace amounts of radioactive material.

### 3.13

It contained within or close to the source in the source holder Torr sealed source.

### 3.15

Sealed sources stored in the shield apparatus is irradiated, thus providing a certain degree of mechanical protection use.

## 4 representation grading

and 4 represents a method of grading and

### 4.1 Representation

Hierarchical representation of the source is sealed with GB 4075 /, after determining the classification indicates the year with a standard approved by four digits, then It is separated by a slash symbol (/), plus a letter, then the five digits and comprises one or more digital parentheses. Letters must be C or E.

--- C represents the activity sealed source does not exceed a predetermined level in Table 3.

--- E represents Table activity sealed source exceeds a third predetermined level.

Five level digital representation, according to the order of Table 2 are as follows. temperature characteristic, external pressure properties, impact properties, vibration characteristics and puncture properties.

If desired, the brackets can be added to a digital representation of a digital or more has passed the bending test source categories. Certain shape Shaped source (elongated source, brachytherapy needle) bending test shown in Table 1, the specific requirements see 7.7. In order to meet the test criteria, you may want to be more than Replications and